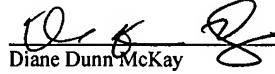




Docket No.: 4555-118 US

The undersigned certifies that this communication is being deposited with the United States Postal Service as prepaid first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on February 5, 2004.


Diane Dunn McKay

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

HAPPER et al.

Serial No.: 10/620,159

Group Art Unit: TBD

Filed: July 15, 2003

Examiner: TBD

Title: METHOD AND SYSTEM FOR
OPERATING AN ATOMIC CLOCK WITH
REDUCED SPIN-EXCHANGE BROADENING
OF ATOMIC CLOCK RESONANCES

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

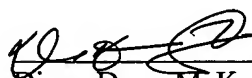
Sir:

Pursuant to 37 C.F.R. §§ 1.97 and 1.98, Applicant hereby brings to the attention of the United States Patent and Trademark Office the following documents of which Applicant has been made aware. The documents are listed on the attached PTO Form 1449. Copies of the documents are enclosed.

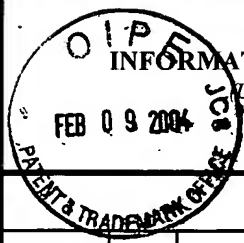
Applicant submits that this Information Disclosure Statement is submitted prior to a first action on the merits.

It is requested that the references be considered by the Examiner and be made of record as part of the available prior art under 37 C.F.R. § 1.104.

Respectfully submitted,


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Attorney for Applicant

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INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Docket Number (Optional)

4555-118US

Application Number

10/620,159

Applicant(s)

HAPPER et al.

Filing Date

July 15, 2003

Group Art Unit

TBD

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		4,122,408	10/24/1978	WALLS	331	3	
		4,425,653	01/10/1984	CUTLER	372	70	
		4,476,445	10/09/1984	RILEY, Jr.	331	3	
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		5,379,000	01/03/1995	BREWER et al.	331	3	
		6,157,261	12/05/2000	AUDOIN et al.	331	3	
		5,606,291	02/25/1997	VERBANETS	331	3	
		5,642,625	07/01/1997	CATES, Jr et al.	62	55.5	
		5,657,340	08/12/1997	CAMPARO et al.	372	69	
		5,852,386	12/22/1998	CHANTRY et al.	331	94.1	

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO

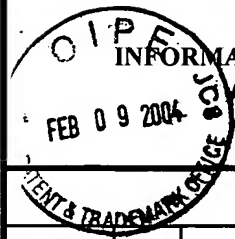
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		S. Appelt, A. Ben-Amar Baranga, C.J. Erickson, M.V. Romalis, A.R. Young, and W. Happer, Theory of spin-exchange optical pumping of ^3He and ^{129}Xe , Phys. Rev. A 58, 1412-1439, Issue 2, August 1998.
		Hyatt M. Gibbs and Robert J. Hull, Spin-Exchange Cross Sections for $\text{Rb}87\text{-Rb}87\text{-Cs}133$ Collisions, Phys. Rev. 153, 132-151, Issue 1, 5 January 1967.

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Docket Number (Optional)

455-118US

Application Number

10/620,159

Applicant(s)

HAPPER et al.

Filing Date

July 15, 2003

Group Art Unit

TBD

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6,025,755	02/15/2000	CAMPARO	331	3	
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FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Bell, William E., Bloom, Arnold L., optical Detection of Magnetic Resonance in Alkali Metal Vapor, Phys. Rev. 107, 1559-1556, Issue 6, September 1957.
		Walter, D.K., Griffith, W.M. and Happer, W., Magnetic Slowing Down of Spin Relaxation due to Binary Collisions of Alkali-Metal Atoms with Buffer-Gas Atoms, Phys. Rev. Lett. 88, 093004 (2002).

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

